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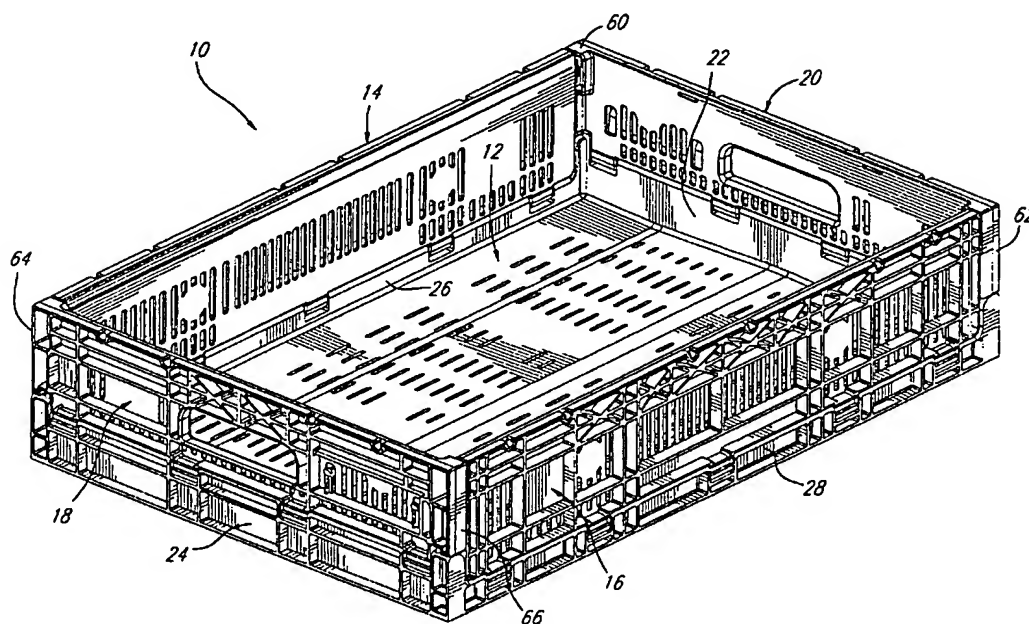
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(54) **CONTENEUR A CINQ PANNEAUX AVEC MONTANTS  
D'ANGLE**

(54) **FIVE-PIECE CONTAINER WITH CORNER POSTS**



(57) La présente invention a pour objet un conteneur comportant cinq panneaux dont un constituant le fond, deux panneaux latéraux et deux panneaux d'extrémité opposés et montés en articulation au panneau constituant le fond, de telle sorte qu'ils peuvent passer d'une position où ils sont rabattus vers l'intérieur à une position verticale. Un montant d'angle est fixé à chaque coin du panneau constituant le fond; chaque montant d'angle comporte un organe de verrouillage situé à sa partie supérieure et destiné à s'imbriquer dans une cavité aménagée en-dessous et aux quatre coins d'un conteneur de construction semblable, de telle sorte que lorsque les panneaux latéraux et d'extrémité du conteneur sont rabattus sur le panneau constituant le fond, un certain nombre de tels conteneurs peuvent être empilés à la verticale.

(57) A five-piece open container consists of a bottom piece and opposite side and end pieces which are pivotally mounted to the bottom piece so that they can be moved between an inwardly folded position and an erected position. A post is provided at each corner of the bottom piece and includes a locking member on its top wall which is engagedly received in a cavity provided at each corner of the underside of a similarly constructed container so that, when the side and end pieces are inwardly folded over the bottom piece, a stack of similarly constructed containers may be secured on top of one another.

**TITLE OF THE INVENTION**

Five-piece container with corner posts.

**FIELD OF THE INVENTION**

5 The present invention pertains to a five-piece open container consisting of a bottom piece and four side pieces wherein each corner of the bottom piece has a post to secure the stacking of a similarly constructed container with its side pieces in a folded position relative to the bottom piece.

**BACKGROUND OF THE INVENTION**

10 Containers for carrying items, such as bottles, fruits and vegetables and the like, are made of injection molded plastics material to replace containers which were previously made from wood or cardboard. These plastic containers can be cleaned and washed so that they may be reused frequently.

15 Recently, plastic containers have been made without the use of any metallic parts so that the connection of the side pieces to the bottom piece is accomplished by integral parts of these pieces, such as hinges and hinge connections, which allow the side pieces to be folded between an erected position, an inwardly folded position and/or an outwardly folded position. One such construction can be found described in applicant's  
20 patent No. 5,515,987 issued May 14, 1996. Similar containers may also be found described in applicant's co-pending applications Nos. 08/696,241 and 08/696,242, both filed August 13, 1996.

25 The bottom piece and the four side pieces of the containers described in these patent and patent applications comprise a particular construction along their connecting edges so that the side pieces may be

folded in one of the three mentioned positions: inwardly folded, erected and outwardly folded. When these containers are returned empty, their side pieces are pivoted in their outwardly or inwardly folded positions so that they may be stacked in an efficient compact arrangement. However, very often,  
5 in such stacked condition, they lack stability.

There is therefore a need to provide some additional securement to these containers when they are stacked in columns with their sides in folded positions.

#### **OBJECT AND STATEMENT OF THE INVENTION**

10 It is an object of the present invention to provide a five-piece open container with a construction which will ensure stability when they are stacked with their side pieces folded inwardly or outwardly. This is achieved by providing, at each corner of the container, a secure arrangement preventing the stacked containers to move relative to one another.

15 The present invention therefore relates to a five-piece open container for carrying items and comprises: a rectangular bottom piece formed of plastics material, the bottom piece having a pair of opposite side edges and a pair of opposite end edges; a pair of side pieces formed of plastics material, each side piece having a lower edge; and a pair of end  
20 pieces formed of plastics material, each end piece having a lower edge. Each side edge and each end edge of the bottom piece display a series of horizontally spaced recessed areas and a horizontally extending integrally formed hinge traversing each recessed area. Each lower edge of the side and end pieces include a series of horizontally spaced extensions, the  
25 extensions being so disposed along each lower edge as to be received within a corresponding one of the recessed areas for pivotal assembly of the

side and end pieces to the bottom piece. The extensions are configured to enable engagement and disengagement of the extensions with and from the hinges and to allow the side and end pieces to be moved between at least two positions including an erected position and an inwardly folded position.

5 The bottom piece displays, on its upper side, vertically extending post means at each corner thereof and, on its under side, a post bearing means at each corner thereof; each post means has a top wall including locking means thereon, each post bearing means including a cavity in vertical alignment with the locking means whereby, when the container, with side and end

10 pieces in an inwardly folded position, is stacked with similarly constructed containers, the locking means of the container are engagingly received in the cavity of a superposed container.

Other objects and further scope of applicability of the present invention will become apparent from the detailed description given

15 hereinafter. It should be understood, however, that this detailed description, while indicating preferred embodiments of the invention, is given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art.

#### IN THE DRAWINGS

20 Figure 1 is a top perspective view of one embodiment of a five-piece open container made in accordance with the present invention;

Figure 2 is an enlarged partial top perspective view showing one corner area of the bottom piece of the container;

Figure 3 is an enlarged bottom perspective view of the corner shown in figure 2; and

25

Figure 4 is a cross-sectional view showing two containers made in accordance with the present invention in stacked arrangement.

## DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to figure 1, there is shown a five-piece open container, generally denoted 10, made entirely and solely of rigid plastics material. The container consists of a bottom piece 12, of opposite side pieces 14 and 16 and of opposite end pieces 18 and 20.

The structural appearance of the five pieces of the container is conventional consisting of reinforcing ribs on their outer walls and a plurality of openings to provide rigidity and lightness (and aeration in some cases). The end pieces also have larger openings in their upper part providing handles for carrying the container.

The side and end pieces are pivotally connected along their lower edge to a series of hinges (such as 30 and 32 in figure 2) integrally formed along the upper edge of the opposite end walls 22 and 24 and opposite side walls 26 and 28 of the bottom piece 12. The particular connection of the opposite side pieces and end pieces to these hinges 30 and 32 may be found described in U.S. patent 5,515,987 issued May 14, 1996 to the present assignee. Therefore, a detailed description of this connection will not be described herein.

The bottom piece 12 has an upper side displaying a top face 21 which is delimited by the opposite end walls 22 and 24 and the opposite side walls 26 and 28.

At each corner of the bottom piece 12, there is provided a post, generally denoted 40, having the same construction at each corner. Each post 40 consists of a vertically extending rectangular corner projection having a curved top wall 42 which is slightly higher than the upper edges 44

and 46 of the walls 22 and 28 (as well as walls 24 and 26). Extending upwardly from the top wall 42 of the post 40, is a pyramidally shaped integral part 48, the function of which will be described hereinbelow.

Referring to figure 3, the under side of the bottom piece 12 has a rib-like configuration 50 which is well known in the art. However, each corner of this under side displays a rib 52 with a recessed cavity or opening 54. This particular corner construction of the under side of the container is such that the top wall 42 of a post of a similarly-constructed container will bear against rib 52 with its extension 48 received in the cavity 54 providing a locking arrangement when two containers are stacked together. Hence, when the side and end pieces are folded inwardly over the top face 21 of the bottom piece (or alternatively folded outwardly) a column of these containers may be formed and adequately secured by the four posts of the container which are fixedly engaged in the underside corners of superposed containers.

Referring to figure 4, two stacked identical containers 10 and 10' are shown. To better differentiate the two stacked containers, the parts of the superposed container have been identified with reference numerals bearing a prime mark.

Referring to figures 1 and 4, the lateral edges 60 and 62 of the end piece 20 and the lateral edges 64 and 66 of the end piece 18 have a length which is somewhat less than the length of the lateral edges of the side pieces by reason of the presence of the posts 40. As better seen in figure 4, the lower edge 68 of the lateral edge 62 of the end piece 20 has a re-entrant portion 70 so that it may extend over the projection 48 of the post when the end piece is moved from a horizontal folded position to a vertical erected position.

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Although the invention has been described above with respect with one specific form, it will be evident to a person skilled in the art that it may be modified and refined in various ways. For example, the particular construction of the connection of the end and side pieces to the bottom piece  
5 may vary. It is therefore wished to have it understood that the present invention should not be limited in scope, except by the terms of the following claims.



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**CLAIMS**

1. A five-piece open container for carrying items comprising: a rectangular bottom piece formed of plastics material, said bottom piece having a pair of opposite side edges and a pair of opposite end edges; a pair of side pieces formed of plastics material, each side piece having a lower edge; and a pair of end pieces formed of plastics material, each end piece having a lower edge; each said side edge and each said end edge of said bottom piece displaying a series of horizontally spaced recessed areas and a horizontally extending integrally formed hinge traversing each said recessed area; each said lower edge of said side and end pieces including a series of horizontally spaced extensions; said extensions being so disposed along each said lower edge as to be received within a corresponding one of said recessed areas for pivotal assembly of said side and end pieces to said bottom piece; said extensions being configured to enable engagement and disengagement of said extensions with and from said hinges and to allow said side and end pieces to be moved between at least two positions including an erected position and an inwardly folded position; said bottom piece displaying, on its upper side, vertically extending post means at each corner thereof and, on its under side, a post bearing means at each corner thereof; each said post means having a top wall including locking means thereon; each said post bearing means including a cavity in vertical alignment with said locking means whereby, when said container, with side and end pieces in an inwardly folded position, is stacked with similarly constructed containers, said locking means of said container are engagingly received in said cavities of a superposed container.

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2. A five-piece container as defined in claim 1, wherein said locking means on said top wall at each corner has a height relative to said under side exceeding that of said side and end edges of said bottom piece.

3. A five-piece container as defined in claim 2, wherein said opposite side edges has a first height and said opposite end edges has a second height, each of said first and second heights being less than the height of said top wall of said post means relative to said under side.

4. A five-piece container as defined in claim 3, wherein the height of said opposite side edges is less than the height of said end edges whereby, in a folded position, the end pieces lie over the side pieces.

5. A five-piece container as defined in claim 1, 2, 3 or 4, wherein said extensions define a C-shaped profile.

6. A five-piece container as defined in claim 4, wherein each said end piece has opposite lateral edges having a length shorter than lateral edges of said side pieces whereby, in an erected position, the side edges of the end pieces extend above and blend with the post means at each corner of the container.

7. A five-piece container as defined in claim 6, wherein the bottom wall of each said lateral edges of said end pieces has a recessed portion in order to allow passage of said locking means when said end pieces are moved into an erected position.

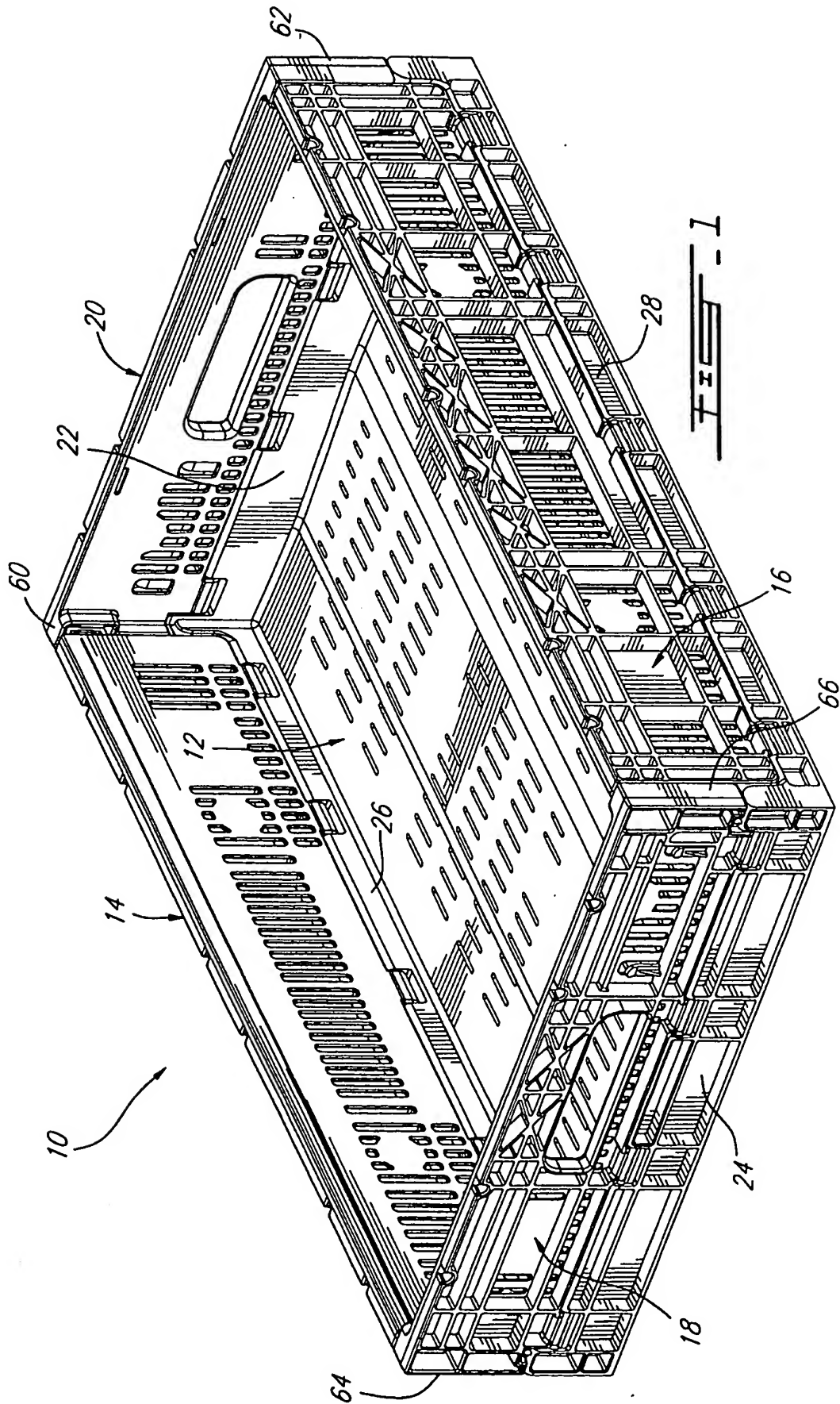
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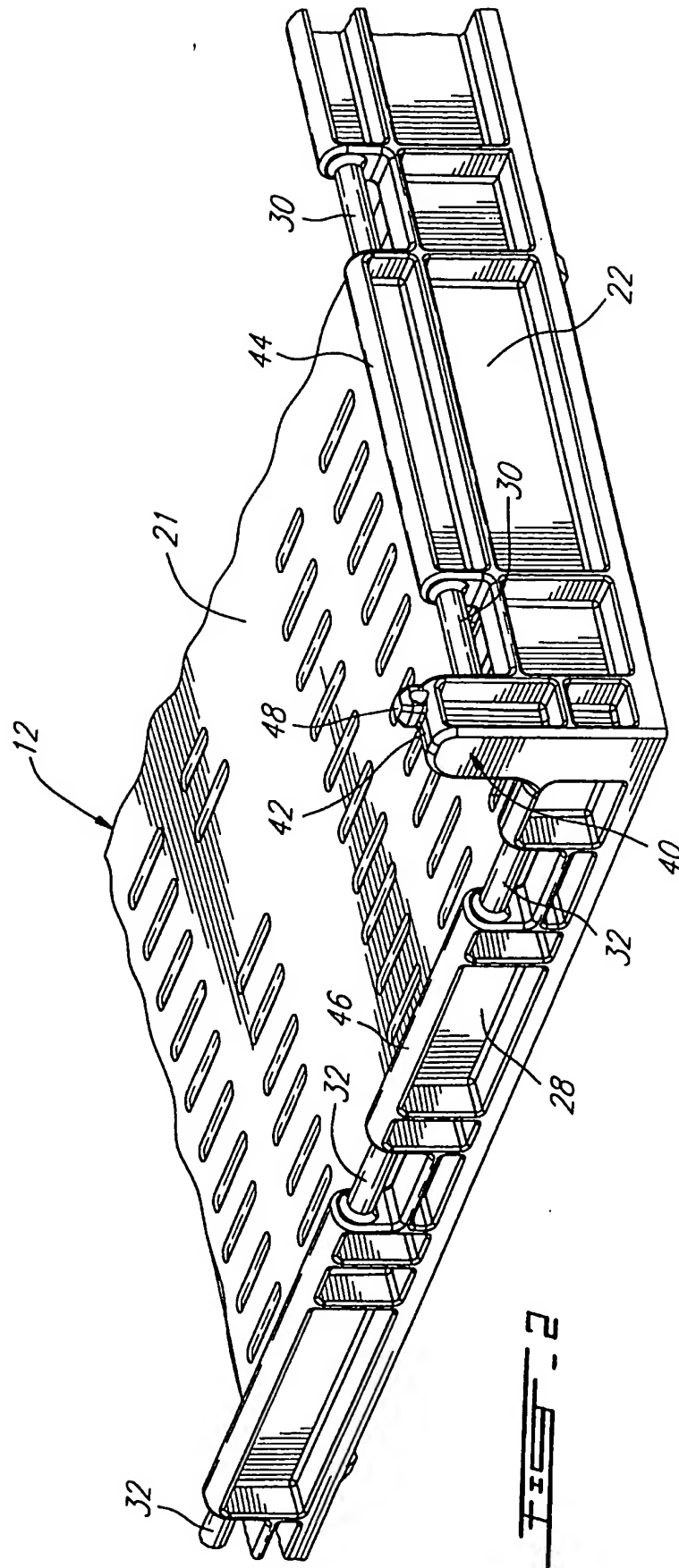
8. A five-piece container as defined in claim 1, wherein said post bearing means include rib means contacting the top wall of a five-piece folded container stacked therebeneath.

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**ABSTRACT**

A five-piece open container consists of a bottom piece and opposite side and end pieces which are pivotally mounted to the bottom piece so that they can be moved between an inwardly folded position and an erected position. A post is provided at each corner of the bottom piece and includes a locking member on its top wall which is engagedly received in a cavity provided at each corner of the underside of a similarly constructed container so that, when the side and end pieces are inwardly folded over the bottom piece, a stack of similarly constructed containers may be secured on top of one another.





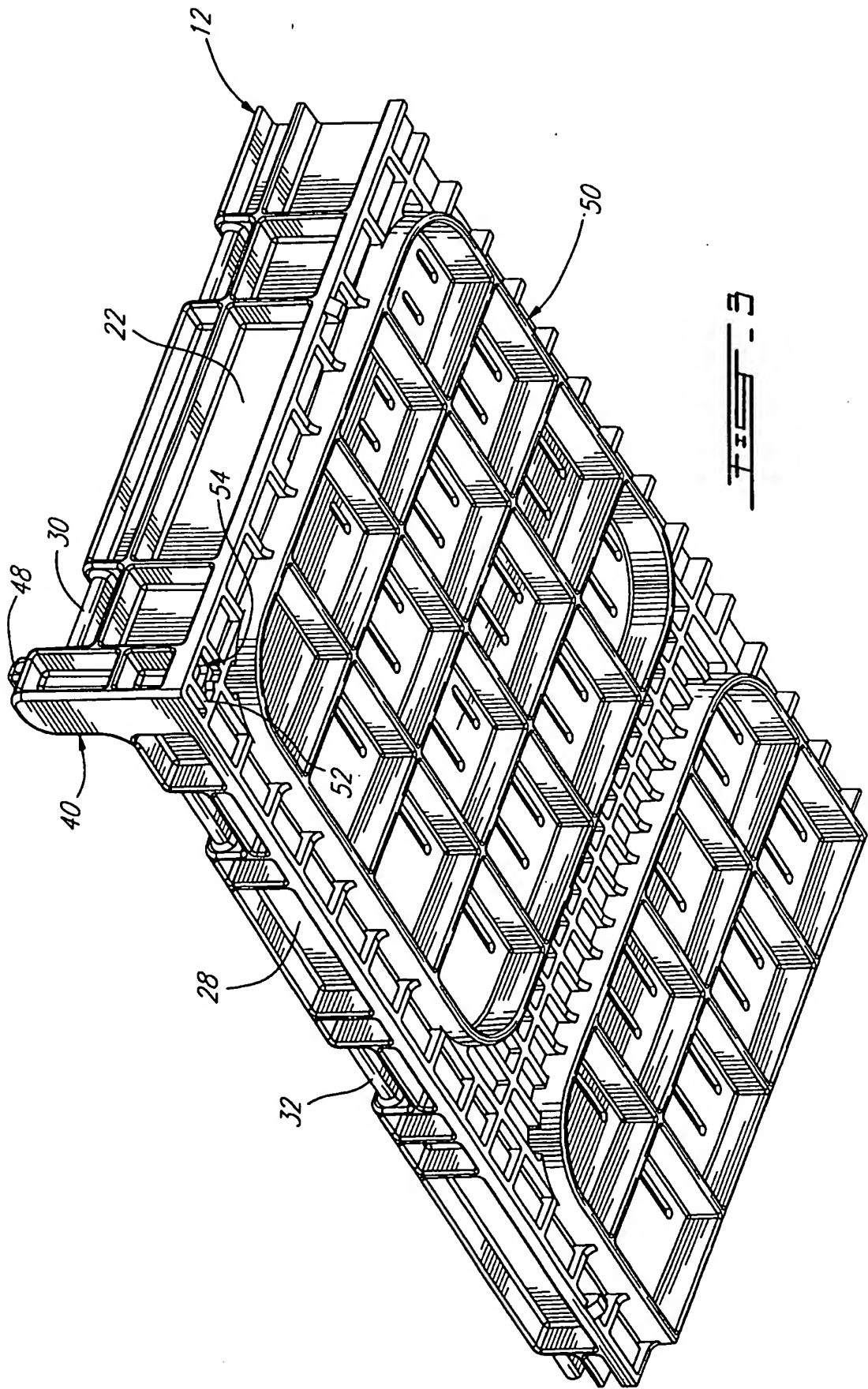


Fig. 3

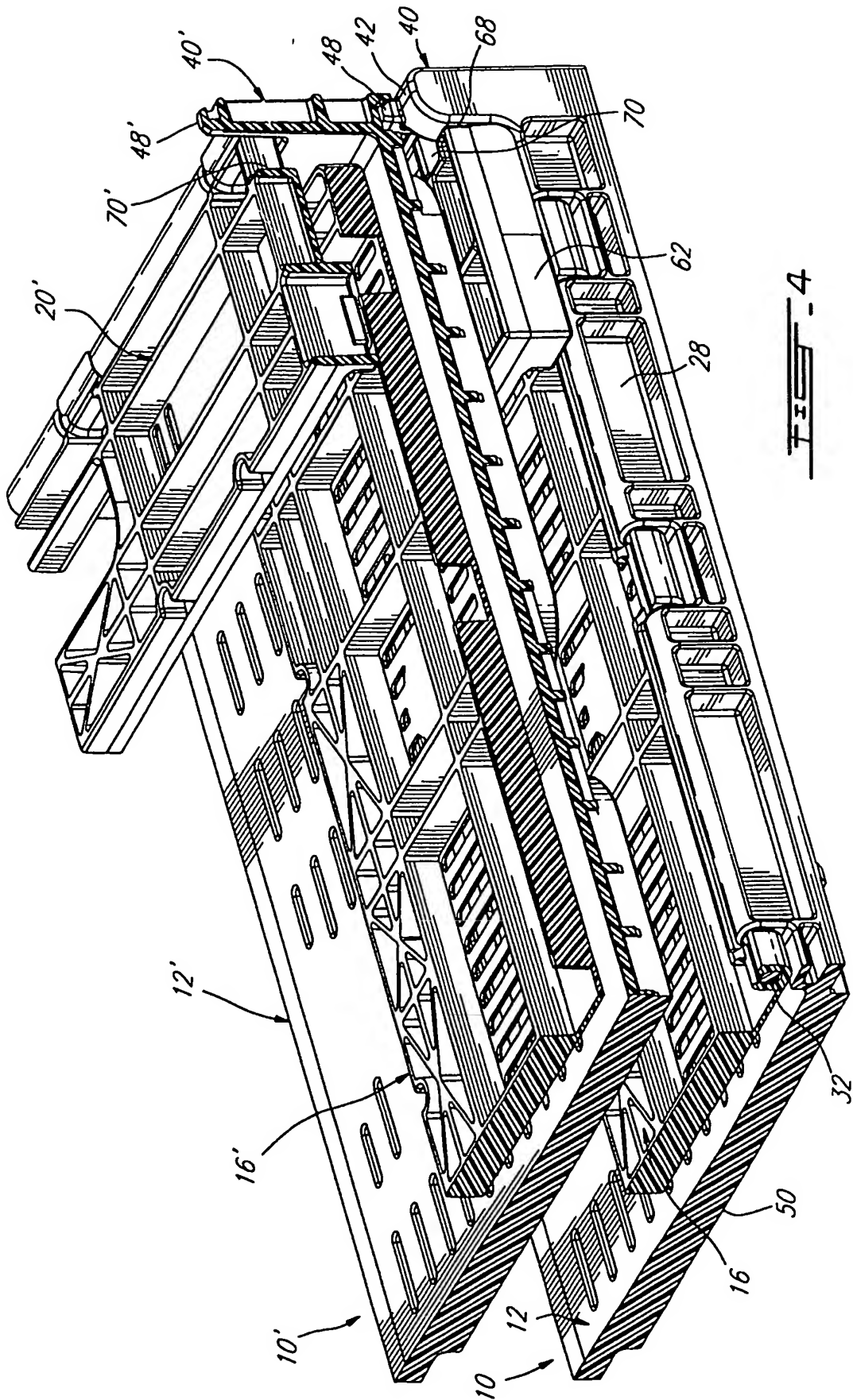


FIG. 4